

Date

Rick Parken  
Region 10  
Environmental Protection Agency  
1200 Sixth Avenue  
Seattle, WA 98101

Dear Mr. Parken:

As you proceed to model the Columbia and Snake Rivers toward allocating temperature loads to point and non-point sources, a clear understanding of the special conditions for these rivers would be helpful. This letter will provide you with an explanation of how the State of Washington's Water Quality Standards apply to the Columbia and Snake Rivers. You may also choose to use appropriate portions of this explanation in your problem assessment.

The water quality standards are established in the Washington Administrative Code, Chapter 173-201A, "Water Quality Standards for Surface Waters of the State of Washington".

Our waters are categorized in the Water Quality Standards into classes based on the character of the uses of each waterbody. The uses most sensitive to higher temperatures are migration, spawning and rearing of salmon. The most protected class on the Columbia Snake is "AA" or 'extraordinary' and this applies only to Lake Roosevelt. The rest of the river is grouped into class "A" or 'excellent'. Under each of these classes, temperature standard is applicable at any time of day or night. They apply toward fish protection in all portions of the rivers, including fish passage facilities and fish ladders within the dam structures.

Each class of water is assigned a maximum temperature. For class "AA" waters it is 16 centigrade. For class "A" waters it is 18 degrees centigrade. However, for the Columbia River below Priest Rapids dam and for the entire Snake River, a special condition applies which is two degrees higher, 20 degrees centigrade.

"Natural Conditions" for temperature means water temperatures as they are best assessed to have existed before any human-caused pollution. If the Snake or Columbia is found to have a natural condition higher than the standard, no additional temperature pollution can be added that will result in raising the temperature more than 0.3 degrees centigrade. This would be measured as the cumulative impact of all dischargers as measured by the far-field TMDL model.

Incremental temperature increases are allowed when existing temperatures are below the standard as long as the standard maximum temperature is not exceeded. This is different for different parts of the river. Some of these increases are expressed as formulas.

Generally, they are more restrictive for the upper portions of the rivers. This table shows how these apply to different portions of the river:

<b>River Portion</b>	<b>Incremental Increase</b>	<b>Application</b>
Columbia from coast to Oregon Washington Border 20°C	Temperatures increases shall not raise receiving water temperatures more than 0.3 degrees Centigrade (°C) due to any single source or 1.1 °C due to all activities combined as determined by the EPA TMDL temperature model.	Applies to both point and non-point sources.
Snake Mainstem from Clearwater River to Washington-Oregon border 20°C		
Columbia – Oregon-Washington Border to Priest Rapids Dam 20°C		
Snake Mainstem from Mouth to Clearwater River 20°C		
Columbia – from Priest Rapids Dam to Grand Coulee Dam 18°C	Increases shall not exceed $t = 28/(\text{background temperature}^{\circ}\text{C} + 7)$	Point Sources
	Increases shall not exceed 2.8°C	Non-point sources
Columbia—above Grand Coulee Dam (Lake Roosevelt) 16°C	Increases shall not exceed $t = 23/(\text{background temperature}^{\circ}\text{C} + 5)$	Point sources
	Increases shall not exceed 2.8°C	Non-point sources

The 0.3 °C increase above standards/natural conditions and the incremental increases up to the standards/natural conditions apply to the mixing zones of NPDES discharges. For the dams, they apply to the point where compliance is measured.

I hope this makes our water quality standards easier to understand and apply in the modeling of the Columbia and Snake Rivers for temperature.

Sincerely,

Mark Hicks  
Water Quality Standards Coordinator